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AN ITALIAN BOOK ON EMPEDOCLES

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THE recent appearance of an Italian book* on Empedocles emphasizes the growing conviction among historians of science that this almost mythical figure not alone furnishes us with a tie that binds the birth of science with magic, but that the fragments of his verse contain the germs from which sprang much of the subsequent medicine and not a little of the physics of the later Greeks. It also illustrates how impossible it is, even in a treatise of some six or seven hundred pages, to give any coherent account of him. Almost every line of the one hundred and fifty odd fragments lends itself to comment, but the comments of modern critics diverge into paths leading into fields of science, religion, medicine, poetry—all now quite remote from one another, but very much less so when the ancient commentators recorded his sayings and their criticisms on them in the "testimonials," Bignone calls them, ninety-eight in number, which the industry of German and Italian authors have assembled for us. To one interested as I have been in this ancient Sicilian of the old Magna Graecia the book, which I suppose from the mischance of war has been long in falling into my hands, is a veritable mine. Several of my essays on Empedocles have found their way into various journals of more recent issue. Nevertheless this book of the modern Italian cult of the history of science tempts me again to venture, under the veil of reviewing it, to say something of its subject, despite the impossibility of avoiding some repetition even of matter published in this journal.

In the review of a book the lack of coherency can be more readily pardoned than in an essay even on Empedocles, since in one there must be at least a leading thread of interest that binds disparate parts together, while in the other the writer is licensed to pick here and there subjects for his desultory converse with his readers. This is a privilege to be cherished when one has to deal with a personality of striking interest and at the same time with trends of thought which diverge so widely in modern time as does that of this citizen of Agrigentum, whose mouldering walls have been levelled in the dust of twenty-four centuries. Incoherence in the review of a necessarily incoherent book on the fragments of two poems as old as the Carthaginian invasion which levelled them can hardly be unexpected, but it can be avoided somewhat by omissions supplied to some extent

*Bignone, Ettore: *I Poeti Filosofi della Grecia* Vol. II. Empedocle Torino 1916.

in what I have previously written. When the reader comes to realize how the phrases preserved to us lead us off into the most distant, the deepest and the most exalted, realms of thought and yet often perceives that much which floats on the surface is really the froth of the human intellect, blind alleys of the mind and not a film on the surface which hides sunken treasures below, he must thereby be aware that we are in the infancy of intellectual development. Germs of mighty things, too, lie hidden in a chaos of confused activities of the mind, in a welter of striving after the truth which are scarcely more than instincts and impulses, but which have after all led nascent civilizations to their destiny.

I give the plural form to civilization, because the Greek civilization, which sprang up like a mushroom during the next generation, in the foot tracks of Empedocles, and his fellows, was not the only sprout from the germs that lay hidden in their thoughts. His genius was not altogether Greek, perhaps not essentially Greek at all, it is pointed out. The youth of the modern world was his epoch. He initiated tendencies, subsequently renewed by others, it is true, but his own cultural ancestry was Greek and Hindu fused into one. He animated not only the medicine of Hippocrates, but the sublime imaginings of the Neo-Platonists¹ and the industry of the Arabian successors of Alexandrian science, though on reference to Clement of Alexandria² I see no reason why Bignone should think from the text he looked on him with a benignity he was unaccustomed to accord to science, due to the declaration of Empedocles that he distrusted the evidences of sense. He was an orientalist and a westerner, a mystic and a man of science. In a world of autocracy he belonged to democracy. His thaumaturgy and his grovelling before a crowd were a part of it. Much of the philosophy of the Greeks after Aristotle came from the all but forgotten subterranean springs of Alcmaeon and Empedocles. His inspiration, for the most part unrecognized, of Alexandrian mysticism, flowing through Plato, found and made fertile the arid sands of Africa in which his own intellectuality had its origin. His affiliation, as I have pointed out before this Italian book came under my observation, was Egyptian. Sicily was the stepping stone from Carthage across the Mediterranean to the European continent. We see the stamp of the African on the face of immigrants from Sicily and lower Italy today, as they step on the wharves of Ellis Island.

We dimly see in the records, perhaps, his leanings to democracy but we observe the whisperings of oriental plotting, the silence of fear in the face of oriental despotism. His revolt, if such it was, in the interests of the people, was an oriental revolt. It was African. It is

¹Whittaker, Thomas: *The Neo-Platonists*, 2nd ed. 1918. Cambridge University Press.

²Clement of Alexandria, transl. by G. W. Butterworth, Loeb Classics. Putnams 1919, pp. 55 and 145.

told that at a banquet given by the new democratic reform government of Agrigentum, already suspected of reactionary tendencies, Empedocles took note the people were not served with drink. Angered he told the waiters to pour wine for the common people, but they said they must wait for the magistrate of the council. When the latter arrived he was made king of the feast and set up a tyrannical rule saying they *must* drink and if any disobeyed wine should be poured on their heads. Empedocles did not breathe a word, but the next day, in his capacity of judge in the courts, he condemned to death both the arrogant bureaucrat and the chief under whom he served. The incident is rather mutilated in the telling, but it seems to bear the marks not only of a drunken brawl but of an oriental conspiracy. In some such way as this, quoted in the laconic language of Diogenes Laertius from the Sicilian historian, Timaeus, he began his revolt. He may have been the "champion of civil liberty," in the phrase of a modern Italian patriot, but some of us westerners wonder a little how a trivial affront could be magnified into a revolution which overthrew the government of a city of eighty thousand souls. We have to imagine the hidden undercurrents of discontent and suspicion and of fear that the Carthaginians were soon to come again as invaders, as indeed they did. For Agrigentum arose and flourished between one African invasion and another a century or two later. Quickly after the repulse of the first one, the fertile hinterland of Sicily poured its riches into the seaport and the commerce which enriched Agrigentum made her luxury and prodigality a byword of the Sicilian coast and the neighboring shores of Italy and reached the ears of the poverty stricken peasants of Greece itself. Sicily was the Eldorado, the California of the nascent civilization of Greece—and its grave, we may say, after reading the thrilling pages of Thucydides' account of the Sicilian expedition in which perished the flower of Athenian youth and her power, but we are still nearly a hundred years before that tragic event. Agrigentum survived it for a few years and was then overwhelmed herself by the Carthaginians, but the motive at the bottom of the Athenian venture—and probably of the Carthaginian also—was plunder. It had been told Agrigentum plutocrats were accustomed at festivals to stand in the highways and invite pleasing travelers to their hospitality. The foreigners had heard doubtless the funny story of the drunken revel when the banquet room reeled so in the sight of the feasters they thought they were in a bark tossed by stormy waves. To lighten ship the wine sick crew threw the goblets and platters and cushions out of the window. It is said of Plato, but it probably was some one else, when he came to visit Agrigentum, that he remarked: "They glut themselves with sensual pleasures as though they expect to die tomorrow and build their palaces as though they expect to live forever."

This was the environment of Empedocles. He was the product of ancient riches and had the time for culture which an opulent, even a sordid, environment gives to its fortunate ones, and we find it quite natural that he should be bitten by "parlor socialism." We indulge in a little doubt if he took the long chance in carrying out such ideas, but that is modern cynicism. It may have been different then. Very likely the paths of commerce over which had flowed the wealth of his family also brought to him as to the modern man of leisure the culture of the East. Doubtless it was thus the influences of the ancient civilizations, more than his own possibly extended travels, were exerted upon him, but there was an indigenous source of his mysticism, at least, which was less directly derived from the other continents that border the middle sea. Orpheus is but a name, scarcely more than legend, but he stands as a symbol in the history of Ancient Greece representing a psychological fragment of the life of a people, yet having a profound influence upon the mysticism and the philosophy which marked them and gave them a hue only occasionally visible at the period of their greatest glory. Later it sprang into prominence in the neo-Platonic philosophy and became assimilated to the religion of Christ. Just as we are able to perceive that the mysticism of the East always remained, at least in its essence, a heterogeneous element in the philosophy of the Periclean Greeks, so we perceive that the Orphic spirit, the yearning after immortality, the clinging to the supernatural is submitted in the dialogues of Plato to a searching analysis by Socrates which it has never received at the hands of Christian exegetists. Before them there had been no discussion of the immortality of the soul. Unquestioning faith in matters devoid of rational support was unknown to the intellectual processes of the Greeks of the golden age. The defiance of the Christian mysticism which declared belief in the miracle because it was impossible, would be incomprehensible in the personages of the Platonic dialogues. It is unknown to Plato no less than to Hippocrates and Aristotle, but Empedocles imagined a time when the universe was governed by physical laws unknown to our cosmology and Huxley, the modern rationalist and archmaterialist, declined to assert that our present knowledge is sufficient to lend any force to the assertion that nothing has ever happened outside the domain of natural law. We get traces of Orphic mysticism in Pindar and in Hesiod. In the theogony of the latter we can perceive the marks of Egyptian and Mesopotamian influence or that of the brown people who once filled the basin of the Mediterranean. How far either of these currents made up the stream of Orphism is not very clear. We can not help suspecting that Orpheus and the Thracian poets or rhapsodes are figures we see in a blurred way through the veil which hides the ancient Mycenaean culture of letters, if there was one, from us. At any rate what is a mere trace in Pindar

and in the still earlier Hesiod we find more pronounced not only in the fragments of his lustral poem but in those of the verses on cosmic philosophy by Empedocles.

In both of these hints of his relationship with the Pythagoreans seem very insistent, but how much the teachings of Pythagoras owe to a chthonic Orpheus and how much they owe to the curricula of the temples of Sais and Letopolis, how much is native Greek, how much is imported Egyptian, how much is a heritage from the peoples who antedated the supposed irruption from the north is still a question for Evans and the archeologists of the Aegean civilization. It is supposed to be Pythagoras to whom Empedocles alludes as a man of superhuman wisdom, of great prophetic power and vast mortal knowledge (frag. 129). Empedocles was born (492 B. C.?) probably not long after the death of Pythagoras and Alcmaeon, from the latter of whom Empedocles is supposed to have derived much of his philosophy, especially his medicine, is thought to have been a cautious follower of Pythagoras and, perhaps in his youth, a personal one. Empedocles, Pythagoras and Democritus, according to Philolaos, belonged among the Magi. This item of information is not specifically in accord with other testimony, but we have no knowledge how far into Greece the doctrine of the Persians penetrated during the domination of their empire in the Mediterranean. The term Magi was then doubtless interchangeable with that of philosopher in our sense, but Pythagoras and Empedocles are not commonly spoken of as Magi. Democritus however and his father were on good terms with Xerxes and they were intimately associated at the time of the great invasion with the Magi who followed in the wake of the Persian myriads. It is in those of Pythagoras and Empedocles rather than in the traditions of Democritus that we surmise the influences of the Zoroastrians.

I should like to dwell on the excellence of the versification of Empedocles, to which Symonds³ has paid tribute. Bignone hardly alludes to it and I am too lame in my Greek leg, at best, and all but helpless in the archaic and mutilated lines of Empedocles. Aristotle makes the rather paradoxical remark that he resembled Homer only in the metrical form of his poems, and one hardly knows whether to take that for a compliment or not.

I have emphasized the mystic side of the multiform legends of Empedocles, in spite of the fact it is not so clearly brought out as would seem helpful in the monograph I am taking for a text. Of all the activities of the mind affiliated with the earliest scientific thought, medicine can least afford to be blind to that side of it in the history of science. That is par excellence the *fons et origo* of its being. Modern commentators frequently refuse the name of science to medicine, but as we recede into the mists that hide its source, the one thing

³Symonds, John. Addington; Studies of the Greek poets, 2 vols. London. Block. 1902.

that looms up to us in absolute reality, though in uncertain outline, is the fact that science and medicine were indissoluble only when they were permeated with mysticism and a part of religion. Empedocles was a pupil of Parmenides at Elea and it is clear that he absorbed the ideas of the earlier Nature Philosophers, especially those of Heraclitus, but he was a poet as well as a philosopher; he was a conjuror who called the dead to life, a wizard with a tendency to pomp and parade and a flaunting of purple garments before the people, shod with brazen, some say golden, sandals. Like the Nigger Jim, when he confided to Huck that he "knowed most everything," he assured his favorite disciple, Pausanias, in solemn flowing verse that he knew about all there was to be known, about medicine especially, and was ready to impart all that mortal man could understand to any seeker of knowledge. Despite disclaimers of the more sophisticated, who know such things don't look well in cold print, one occasionally encounters such exalted and naive notions of the omniscience of modern science. One who has contributed much to it I once heard remark that the causes of about all disease are now known, so that unfortunately there was not much left for an anxious researcher to do in that direction. Alexander weeping for other worlds to conquer was also among the mourners. We see how natural it was for the pantheistic Empedocles, the thaumaturge and the mystic, to declare that in the final analysis prophets become poets and physicians.

He was by virtue of this primitive communing of man with nature, the first to question nature in all its comprehensiveness by any rational and experimental method and, as has been said, his theories, though frequently disputed and confuted, became the heritage of the ages that followed him. He was the first to introduce into Greek physics the idea of a force which operates on matter. For him it was not only the latter which occupied space, but the attributes of matter themselves, inclusive of the motive forces of attraction and repulsion, or as he symbolized them, Love and Hate. They had not only extension in space but consciousness. Indeed if God is force and not a neo-Platonic god above both force and matter, there is no denying this to modern theists. All ancient Greek philosophers confounded consciousness with knowledge. This Empedocles insisted upon. To deny it we are at once betrayed into hair-splitting verbal differentiations and we have to close the discussion by declaring that at least a discrimination is necessary in the analysis of phenomena and if the mystic says he knows a thing because of his consciousness alone he lays claim to powers we rationalists have no conception of and he also readily drifts also into the attitude of the Nigger Jim. Yet since we have to assume the existence of time and space from the same necessity, its metaphysical and irrational quality is no refutation of a consciousness which goes beyond knowledge. Modern science can no more get away from the

unknowable, if it wishes to advance, than religion can. It can no more afford to ignore it than religion can ignore knowledge. The one must wrest the knowable from the unknown and the other can not recede entirely into the unknowable without disappearing altogether. This was better understood by ancient philosophers than by modern scientists for they were in closer contact with the idea of primitive man that the soul is just like other matter. It was all soul or all matter for him. Even for Locke the soul was a substance, but Pythagoras saw souls dancing in the sunbeam. It would have been of no use for a modern physicist to tell an ancient Egyptian that they are small aggregates of molecules, corpuscles of real matter intercepting and reflecting light. The Pythagorean would have said, "Certainly, why not?" We have gone a little further and have divided and subdivided these "souls" and have found them loaded with energy, made up wholly of energy, something very much like "force" indeed. So Empedocles, in separating force from matter, yes, even in being a pluralist instead of a monist, in leaning towards a tetrad of elements, instead of frankly accepting the view of Heraclitus and Parmenides that they are but mutations of a single thing, force, energy if you will; in this attitude Empedocles lay athwart the current of ancient thought, just as there are some physicists today who refuse to accept a pure monism. We would never have been anywhere in science if this revolt had *not* stemmed the precipitation of ancient logic. It was necessary for practical reasons, for analysis, for foreshortening the field of cosmic facts, for luring the investigator on to the incidental discovery of some of them, to believe in a false theory. A multiplicity of material elements, like a multiplicity of souls, was necessary to the human mind to account for phenomena until it had behind it the heritage of ten thousand years of thought. Most knowledge was arrived at in this way, built up from scaffoldings of erroneous theory. It is only occasionally that any such structure preserves such substantial parts as the atomic theory, but the very name of it, indivisibility, we have nullified in splitting the atom. Aristotle declared Empedocles grouped together with the elements his two forces, Love and Hate, and Bignone finds authority that thus he was sometimes credited with making six elements, but Aristotle says there were thus logically but two because he placed them and the other elements in apposition to one another—force and matter. We would say this makes him a dualist and keeps him still in court in modern times.

Empedocles was no less a philosopher, but too much of a poet, when he called the oceans the sweat of the earth, yet it must have been a comfort to his disciples, still clinging to the mutational doctrines of the monists. He recognized there was sweet water in the sea and it is not at all certain that Aristotle⁴ was not describing in a faulty manner an experiment of Empedocles instead of having performed it

himself when he asserted that if anyone will make a thin *waxen* flask, cork it, and sink it empty in the sea, in a night and a day it may be taken up full of water which is drinkable. He recommends the wrong (?) material for the flask, it would seem, but it is quite in line with the klepsydra experiment of Empedocles which Aristotle ascribes to him. I am avoiding further reference to Empedocles as an experimentalist, for to that I have already referred elsewhere, but he was as well an observer of facts, spread around him in the volcanic regions of the Mediterranean, for he recognized the igneous origin of some rocks and the aqueous origin of others. If we thus get a glimpse of geology we turn to his idea of the sphere and we get one of geometry and find in it the origin perhaps of the Ptolemaic astronomy, much obscured it is true by mysticism and metaphysics, but essentially similar. The mystic part of it is said to have been Eleatic philosophy and we find that element of it again in Plato. The Pythagorean flavor of it is however apparent. Geometrically the sphere is a solid body, but mystically it is a divine, because a perfect, body inasmuch as it is of a mass the greatest, in proportion to its extent of periphery, of any possible geometric figure. Plato reasoned thus and it is probable that it was this geometric thought, "of a sphere, round, equal in everything to its own self," which led Empedocles to choose that form as the figure of God, the first gleam we get from a deist of a conception which is not anthropomorphic. Whether this identifies God with the universe itself I do not clearly understand, but it seems very probable that this was a pantheism worked out in details and carried to its logical conclusion. In a sphere turning around the earth he set the fixed stars like gems in a bracelet, but the planets were free and he looked upon the moon as torn off from the sun, which itself is the reflection of the fire of the whole universe. The testimony of doxographers as to these details of Empedocles' astronomy are confusing and contradictory, perhaps tinctured, some of them, with the later Ptolemaic formulas, and it is difficult to say how far he went in this scheme, but Aetius speaks of his view that the pole of the earth was inclined, presumably obliquely to the plane in which the sun performed its revolutions around it (?) in the revolving sphere. Like Thales he understood the nature of the lunar eclipses.

Now the space between the heavenly bodies he thought filled with demons and this belief is also ascribed to Thales by Laertius Diogenes. To my mind this is another significant hint they both had their astronomy direct from Babylon where the imaginations of the inhabitants filled the air they breathed with them, and all circumambient space. It is a heterogeneous pantheism but a logical one, the conception of spirits instead of a spirit pervading all. If a void or a vacuum or non-being, is as real a thing as being or matter, then the

⁴Aristotle: History of Animals, Lib. VIII, Cap. 3. II. Bohn, p. 198.

spirits become more mystical still for all but the Eleatics.

We see the pantheism of the atmosphere more primitive men breathed, though the experiments of Dr. Bose of late years, himself an orientalist, but confirms the assertion of Empedocles, twenty-five hundred years ago, that plants like all nature are endowed with sensibility and give responses to their environment, which are easily recognized by the comparatively modest extension technical art has given to man's senses. The physicists are now teaching us that the earth itself is constantly shifting its mass. For Empedocles like the plants and animals it breathes and sweats. It is not chiefly because Dr. Bose and Empedocles are orientalists and were penetrated deeply by ancient pantheism, though that at least gave direction to the earlier thinkers thoughts. It is because the conclusions of Empedocles, however arrived at, contain the germs of truth in rich abundance. It was not orientalism which established the reality of the "emanations" of nature, essential in the belief of primitive man and carrying Empedocles to unverifiable and absurd deductions, it was the revelations of occidental science of that very spirit, spirits if you are a pluralist, that lies at the bottom of primitive pantheism. The theory of sight which Empedocles constructed, so irreconcilable with facts both ancient and modern, rested upon corpuscles (electrons) flying from the object to the eye, though in his view those that fly from the eye to the object were quite as important and given more prominence in his fragment on vision and the anatomy of the eye as recorded by Aristotle. Gomperz sees in his theory of the apperception of the senses, which worked through different sized and different shaped pores by selecting the fit from variously proportioned flying molecules, the counterpart of the childish theory of Ehrlich, which so captivated the imagination of American laboratories before the war, and which has been so helpful to us in serology, though such an ancient theory supported by such a modern theory has no claim to reality. But is it chance, which by the way Empedocles regarded paradoxically as the result of the action of certain laws of chaos, is it "chance" which directed two groping minds, twenty-five hundred years apart, into like channels of mental progress?

The doctrine of Spencer, an internal homogeneity becoming external heterogeneity, in the course of evolution, had its counterpart in the philosophy of the old Sicilian, though he apparently was haunted by the thought that there comes a time when the process is reversed and out of heterogeneity homogeneity again springs. Indeed it seems impossible to preserve the indestructibility of energy or matter in stellar space, unless we conceive of some cold storage for the flying emanations until they are again warmed into life, as Very⁵ realizes in drawing attention to the wastage of stellar substance.

⁵Very, F. W. The Wasting of Stellar Substance. *Scientia*, 1-IV-1920.